

BIRD DOG PIT
Warrick County
2005 Fish Management Report

Jason C. Doll
Assistant Fisheries Biologist



Fisheries Section
Indiana Department of Natural Resources
Division of Fish and Wildlife
I.G.C.-South, Room W273
402 W. Washington Street
Indianapolis, Indiana 46204

EXECUTIVE SUMMARY

- A general lake survey was conducted at Bird Dog Pit on June 13 through 14, 2005. An aquatic vegetation survey was also conducted on July 18.
- The Secchi disk reading was 8 ft and dissolved oxygen concentrations were adequate for fish survival to a depth of 14 ft. Submersed aquatic vegetation was found to a maximum depth of 12 ft. Coontail was the dominant plant, followed by chara, American pondweed, creeping water primrose, naiad spp., and Eurasian watermilfoil. Emergent beds, composed of lotus, spatterdock, creeping water primrose, and water shield, covered approximately 46% of the pits surface area.
- A total of 345 fish, representing 7 species, was collected. Bluegill ranked first by number, followed by largemouth bass, and redear sunfish.
- Excessive aquatic vegetation is negatively influencing the fishery at Bird Dog Pit by hindering largemouth bass predation on bluegill. The bluegill relative abundance by number has nearly doubled since the first survey in 2000. Bluegill growth is poor. Age-2 and 3 bluegill are 0.9 and 1.0 in below the district average. The largemouth bass relative abundance by number decreased and growth was poor. All ages grew between 1.0 and 2.8 in below the district average. Back-calculated lengths indicate bass are reaching 12.0 in at age 5.
- The district fisheries biologist should continue annual aquatic vegetation control until submerged aquatic vegetation abundance is reduced to 25% of the lake bottom.
- To provide boat access, 2.4 acres of emergent vegetation should be treated.
- Conduct annual aquatic vegetation surveys in August to monitor the effects of herbicide applications.
- Conduct a standard fisheries survey in 2008 to monitor bluegill, largemouth bass, and redear sunfish abundance and growth.

INTRODUCTION

Bird Dog Pit is an 18.1-acre reclaimed strip pit located at Blue Grass Fish and Wildlife Area. The property is in northwest Warrick County about 1 mi east of Interstate 164. A gravel boat ramp is available in the north basin. Shoreline fishing is available along the road on the north side of the pit and at the boat ramp area.

The lake's fishery is regulated by Indiana's standard length and bag limit regulations. Because Bird Dog Pit is not hydrologically connected to the other pits on the property, it does not contain "river fish" species. The absence of gizzard shad and other river species in Bird Dog Pit increases the lake's potential for bluegill management.

The 2002 survey revealed below average growth for bluegill, largemouth bass, and redear sunfish (Carnahan 2002). Aquatic vegetation was found to be excessive and it was recommended that annual aquatic herbicide applications take place to reduce the density to 25% of the lake bottom. Annual herbicide applications have been conducted yearly for fish management and access purposes since 2002.

METHODS

The current survey was conducted on June 13 through 14, 2005, as part of Division of Fish and Wildlife (DFW) Work Plan 202478, to monitor the fishery and aquatic vegetation. Some of the lake's physical and chemical characteristics were measured according to standard guidelines (Indiana DFW 2001). Submersed aquatic vegetation was sampled on July 18, 2005, using guidelines written by Pearson (2004). A global positioning system (GPS) device was used to record the location of the limnological data collection site, aquatic vegetation sample sites, and fish sample sites.

Fish collection effort consisted of pulsed DC night electrofishing the shoreline with two dippers for 0.72 h. Two experimental-mesh gill nets and one trap net were also fished overnight. All fish collected were measured to the nearest 0.1 in TL. Average weights for fish by half-inch groups for Fish Management District 7 were used to estimate the weight of all collected fish. Scale samples were taken from bluegill, largemouth bass, and redear sunfish for age and growth analysis. Proportional stock density (PSD) and relative stock density (RSD) were calculated for bluegill and largemouth bass (Anderson and Neumann 1996). The bluegill fishing potential (BGFP) index was used to assess bluegill fishing quality (Ball and Tousignant 1996).

RESULTS

Bird Dog Pit was clear with a Secchi disk reading of 8 ft. Dissolved oxygen concentrations were adequate for fish survival to a depth of 14 ft. Submersed aquatic vegetation was found to a maximum depth of 12 ft with an average rake score of 3.67. Coontail was the dominant plant, followed by chara, American pondweed, creeping water primrose, naiad spp., and Eurasian watermilfoil. Emergent plant beds, composed of lotus, spatterdock, creeping water primrose, and water shield, covered approximately 46% of the pits surface area (Figure 1).

A total of 345 fish, representing 7 species, was collected during the survey that weighed approximately 62.53 lbs. By number, bluegill ranked first (62%), largemouth bass ranked second (21%), and redear sunfish ranked third (10%) in the survey sample. By weight, largemouth bass ranked first (63%) followed by bluegill (12%) and redear sunfish (10%). Other species sampled were golden shiner, black bullhead, yellow bullhead, and white crappie.

A total of 213 bluegill was sampled that weighed an estimated 7.17 lbs. They ranged in length from 1.8 to 7.7 in. The bluegill electrofishing catch rate, excluding age 0, slightly decreased from 292.0 to 258.3/h. No bluegill were sampled in gill nets and the trap net catch rate was 27.0/lift. In 2002, no bluegill were sampled in gill nets and the trap net catch rate was 86.0/lift. Bluegill growth for ages 1 through 3 was similar to 2002. Comparisons of growth for bluegill older than age 3 could not be made due to a lack of bluegill older than 3 years in the 2002 sample. Compared to the district's averages, ages 1 through 3 were below average and ages 4 and 5 were average. The bluegill PSD slightly increased from 2 (2002) to 5. The bluegill RSD7 and RSD8 remained unchanged at 2 and 0. The BGFP index classified bluegill fishing as "marginal" with a score of 9 out of a possible 40, compared to a score of 6 in 2002.

Seventy-four largemouth bass were sampled that weighed an estimated 39.65 lbs. They ranged in length from 1.5 to 20.3 in. The largemouth bass electrofishing catch rate, excluding age 0, decreased 45% to 88.9/h. The gill net catch rate was 1.5/lift and no bass were sampled in trap nets. Growth was similar to 2002, and remains below the district's average for all ages. Back-calculated lengths indicate largemouth bass are reaching 12 in (i.e. quality size) at age 5 and 13 in at age 6. The largemouth bass PSD was 40. In 2002, the largemouth bass PSD was 20. The largemouth bass RSD14 increased from 7 (2002) to 9.

Thirty-six redear sunfish were sampled that weighed an estimated 6.15 lbs. They ranged in length from 2.3 to 8.8 in. The redear sunfish electrofishing catch rate increased from 20.0 to

48.6/h. No redear were sampled in gill nets and the trap net catch rate was 1.0/lift. In 2002, no redear were sampled in gill nets and the trap net catch rate was 45.0/lift. Redear sunfish growth was similar to 2002 and remained below the district average.

DISCUSSION

Excessive aquatic vegetation is negatively influencing the fishery at Bird Dog Pit by hindering largemouth bass predation on bluegill. This has resulted in an overabundance of small, slow growing bluegill and a decrease in largemouth bass abundance and growth. The bluegill relative abundance by number has increased 24%, leading to a decline in growth. Age-2 and 3 bluegill are 0.9 and 1.0 in below the district average. The bluegill PSD is below the recommended range (20 to 60) for a balanced fishery, which indicates there is too high a proportion of 3.0 to 6.0 in fish.

The largemouth bass relative abundance by number decreased and growth was poor, which is typical when aquatic vegetation is excessive. All ages are between 1.0 and 2.8 in below the district average. The PSD value is at the low end of the range indicating a balanced population. However, the increase from 2002 indicates the proportion of 12 to 14 in bass increased. To decrease the number of bluegill and improve growth for largemouth bass and bluegill, aquatic vegetation should be reduced.

RECOMMENDATIONS

- The district fisheries biologist should continue annual aquatic vegetation control until submerged aquatic vegetation abundance is reduced to 25% of the lake bottom.
- 2.4 acres of emergent vegetation should be treated for boat access.
- Conduct annual aquatic vegetation surveys in August to monitor the effects of herbicide applications.
- Conduct a general fisheries survey in 2008 to monitor bluegill, largemouth bass, and redear sunfish abundance and growth.

LITERATURE CITED

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Submitted by: Jason C. Doll, Assistant Fisheries Biologist
Date: January 13, 2006

Approved by: Daniel P. Carnahan, Fisheries Biologist

Approved by: _____
Brian M. Schoenung, Fisheries Supervisor
Date: March 15, 2006

APPENDIX 1
FISH MANAGEMENT SURVEY DATA